71ST CONGRESS, 2d Session | COMMITTEE ON RIVERS AND HARBORS, HOUSE OF REPRESENTATIVES, U. S. | DOCUMENT No. 27

WAUKEGAN HARBOR, ILL.

LETTER

FROM

THE CHIEF OF ENGINEERS, UNITED STATES ARMY

TRANSMITTING

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS ON REVIEW OF REPORTS HERETOFORE SUBMITTED ON WAUKEGAN HARBOR, ILL., WITH ILLUSTRATION

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, March 8, 1930.

Hon. S. WALLACE DEMPSEY,
Chairman Committee on Rivers and Harbors,
House of Representatives, Washington, D. C.

MY DEAR MR. DEMPSEY: 1. Referring to letter of the chairman of the Committee on Rivers and Harbors of the House of Representatives, inclosing a copy of a resolution of the committee dated December 14, 1929, requesting the Board of Engineers for Rivers and Harbors to review the reports on Waukegan Harbor, Ill., printed in House Document No. 343, Fifty-sixth Congress, first session, and Rivers and Harbors Committee Document No. 20, Seventieth Congress, first session, and previous reports, with a view to determining the advisability of changing location of piers and of the building of a south breakwater, I inclose herewith the report of the board in response thereto.

2. Waukegan Harbor is on the west shore of Lake Michigan, about 38 miles north of Chicago. The existing project provides for a detached breakwater 600 feet long; for two parallel piers; and for a channel 200 feet wide and 18 feet deep extending from the lake to an interior basin of the same depth protected on the east side by a revetment. In the reports contained in Committee Document No. 20, Seventieth Congress, first session, it was recommended that the detached breakwater be extended to the shore at a point about 1,100 feet north of the entrance channel, at an estimated cost of $210,000, and that dredging be undertaken at the entrance at an additional cost of $15,000.

3. The population of Waukegan and the adjoining city of North Chicago is about 43,000. The locality is being developed industrially. The water-bourne commerce is limited to movements of coal to local dealers and to the recently constructed plant of the North Shore Coke & Chemical Co. In 1929 it totaled 265,684 tons. The Coke & Chemical Co. expects to double the capacity of its plant during the next two years, or to 900 tons of coal per day, and ultimately to a size requiring 2,500 tons per day, or 912,000 tons per year. It expects to start shipping coke by water in about two years at an initial rate of 40,000 tons annually. The estimated saving on coal movement in lake vessels is $1.15 per ton.

4. It appears that entrance to the harbor is made difficult by the formation of a bar at the outer end of the north pier, the sand being brought in from the north through the gap between the westerly end of the detached breakwater and the shore. In October, 1929, a single storm caused the formation of a shoal across the harbor entrance having a least depth of about 11 feet. In addition, vessels find it difficult to enter the harbor during northeast gales, as inadequate protection is given by the breakwater. It appears that there is no present necessity for the construction of a southerly breakwater, as the present and propective commerce can be provided for with reasonable adequacy by extending the detached breakwater to the shore, by the dredging of the shoal near the end of the north jetty and by providing more space in the inner harbor for vessels to turn. In addition, the district engineer proposes that the detached breakwater be extended lakeward.

5. The district engineer recommends extension of the detached breakwater to the shore along the line previously recommended, its extension lakeward approximately 1,188 feet, dredging an area in the vicinity of the easterly end of the north pier, and constructing a bulkhead in front of the city park and dredging the adjoining area, at a total estimated cost of $719,000, with $7,000 annually for maintenance, or about $23,000 less than present requirements. The division engineer concurs.

6. The board states that there appears to be no major industrial development in immediate prospect other than the expansion of the plant of the North Shore Coke & Chemical Co. The business of that concern has already had a marked effect on the tonnage of the harbor, and the proposed expansion will greatly increase the tonnage. Shore developments along the interior basin have left an inadequate fairway for vessels, and it is impracticable to remove entirely the difficulties encountered in moving coal to the piers. The most practicable method of providing for the turning of large vessels in the inner harbor is by excavating a small area in the southwest corner of the basin in connection with the construction of a bulkhead in front of the city park. The board considers, however, that the bulkhead should be constructed at local expense, as it is not customary for the Federal Government to undertake such work, and its construction would make possible the reclamation of land which would be of value to the city. There does not appear to be anything in prospect which would justify the large expenditure involved in relocating the entrance piers or constructing a south breakwater. Extension of the detached breakwater lakeward is not considered essential at this time. Connection of that work with the shore will increase the protection to vessels

appropriated $15,000 "for the improvement of the harbor and breakwater in Waukegan, Ill." Under this appropriation one crib was placed in the proposed location of the breakwater, but it was later washed out and the work abandoned.

The original project was adopted by the river and harbor act of June 14, 1880. This project provided for an artificial harbor formed by pile piers inclosing an area of about 16 acres, the depth in entrance channel and the inclosed area to be 13 feet below mean lake level, 1860–1875 (581.63 feet above mean tide, New York City). This project was modified by the river and harbor act of August 2, 1882, which provided for the removal of the harbor entrance to a point about 1,200 feet north of its location as originally proposed, and the reduction of the area to be inclosed to about 10 acres. Under this project the piers were completed in 1895, and the dredging of the channel and basin in 1897. The total expenditures prior to the adoption of the existing project in 1902, including the $15,000 appropriated by the river and harbor act of August 30, 1852, was $233,944.41, of which $218,233.54 was for new work and $15,710.87 for maintenance.

4. *Existing project.*—The existing project adopted by the river and harbor act of June 13, 1902, is based on a report and survey submitted in accordance with an item in the river and harbor act of March 3, 1899, as follows:

Waukegan Harbor, Ill.: With a view to obtaining a channel 300 feet wide and 20 feet deep.

The total cost of the existing project to June 30, 1929, was $723,760.92, of which $310,314.39 was for new work, and $413,446.53 was for maintenance.

5. *Review of reports in House Document No. 343, Fifty-sixth Congress, first session.*—These reports were unfavorable to the widening of the entrance channel but recommended in lieu thereof the extension of the north pier 1,000 feet, the extension of the south pier 1,400 feet, the construction of a detached breakwater 600 feet long to protect the entrance from northeast seas, the enlarging of the turn into the inner basin by removing a portion of the north pier and a triangular piece of land, and constructing a dock along the new line, and dredging the channel and basin to a depth of 20 feet below the then datum. The estimated cost of this work, including some necessary repairs to both piers, was $345,000. The depth of 20 feet below datum given in that report referred to mean lake level, which was 581.63 feet above mean tide New York City and is equivalent to the present project depth of 18 feet, which is referred to low-water datum for Lake Michigan, 579.6 feet above mean tide.

6. *Review of report in Rivers and Harbors Committee Document No. 20, Seventieth Congress, first session.*—This report, submitted in accordance with a resolution of the Committee on Rivers and Harbors, was to determine the advisability of constructing an extension of the north pier to the outer breakwater to prevent the movement of sand from the north, which forms a bar across the harbor entrance, blocking the channel. The report was unfavorable to the extension of the north pier but recommended the extension of the exterior breakwater to shore at a point about 1,100 feet north of the entrance channel, an added length of about 1,300 feet. The construction of the breakwater extension as recommended would effectually stop the sand movement,

would give better protection from northeasterly seas, and also provide a stilling basin in which southeasterly seas would be dissipated. The estimated cost of the improvement recommended was $225,000, including $15,000 for dredging in the vicinity of the end of the north pier.

The recommendations contained in Document No. 20 follow closely the outlines of the resolution. In reviewing this document it is the opinion of the district engineer that the situation should be looked at from a broad angle and the entire problem of the harbor considered. While the improvements recommended in the document will effectually prevent shoaling in the entrance channel, it is believed that the abrupt change in direction of the channel and its lack of protection at the lake entrance from northeasterly seas should be given attention.

7. *Progress and results.*—The improvements recommended in House Document No. 343, Fifty-sixth Congress, were made as outlined above, except that the detached breakwater was constructed 400 feet farther lakeward in a northeasterly direction than was shown on the map accompanying that report, leaving an opening of 900 feet between the southerly end of the breakwater and the outer end of the south pier, instead of 500 feet as originally contemplated. In 1909 about 520 feet of the inshore end of the south pier was removed and rebuilt on a line diverging southward to the shore in order to provide a small stilling basin that would reduce wave heights within the harbor to some extent. The entrance piers are approximately 240 feet apart, and, as reconstructed and extended, are 1,610 and 3,207 feet in length for the north and south piers, respectively. No action has as yet been taken by Congress on the recommendations contained in the Rivers and Harbors Committee Document No. 20, Seventieth Congress.

8. *Terminal facilities.*—These consist of about 6,100 linear feet of dock front, of which about 2,500 feet are in two slips opening inward in a northwesterly direction from the inner basin. The larger of the two slips is owned and operated by the Waukegan Coal Co., and is equipped with facilities for unloading and storing both hard and soft coal. This terminal has a storage capacity of about 150,000 tons of hard coal and of an equal quantity of soft coal.

The public wharf, about 550 feet long, belonging to the city of Waukegan, is provided with a warehouse, but no unloading facilities. The dock has not been used for several years except by local fishermen. It is open to all on equal terms.

The North Shore Coke & Chemical Co. operate a large coking plant along the east side of the inner basin. This plant was completed in 1927 at a cost of about $4,000,000. Its harbor frontage is provided with a modern dock 1,000 feet long, where coal is unloaded from vessels. This dock is equipped with a coal-handling tower, having an unloading capacity of 300 tons per hour, which will be duplicated when the tonnage to be handled warrants the additional equipment.

With the exception of the city dock and the coal docks listed above, none of the harbor frontage is now in use for water terminals.

The Johnson Motor Co., a new industry established here in 1927 at an outlay of about two and a half million dollars, owns about 400 feet of frontage on the harbor. This company has not as yet made any water shipments, and none are planned for the immediate future. However, as they contemplate extensive additions to their plant, it is not unreasonable to believe they will ultimately take advantage of water transportation.